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<110> E. I. du Pont de Nemours and Company

<120> Plant Lecithin:Cholesterol Acyltransferases

<130> BB1262

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<150> 60/110,782

<151> 1998-December-03

<160> 14

<170> Microsoft Office 97

<210> 1

<211> 542

<212> DNA

<213> Zea mays

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 <212> PRT
 <213> Zea mays

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 35 40 45
 Gly Asn Asn Leu Gly Leu Pro Phe Val Asp Pro Leu Ala Leu Lys Gly
 50 55 60
 Glu Tyr Arg Ser Leu Gln Ser Ser Leu Trp Pro Leu Pro Asn Pro Asn
 65 70 75 80
 Ala Phe Arg Ala Gly Gln Pro Leu Val Thr Thr Arg Ser Arg Thr Tyr
 85 90 95
 Thr Ala His Asp Met Ala Asp Phe Leu Asp Ala Ile Gly Leu Gly Ala
 100 105 110
 Ala Ile Val Pro Tyr Gln Ser Arg Val Leu Pro Leu Phe Arg Glu Leu
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 Pro Ser Pro Arg Val Pro Val Ala Cys Val Arg Pro Gly Leu Gly
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 <211> 233
 <212> PRT
 <213> Zea mays

<400> 4

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 Val Ser Ala Asn Asn Phe His Pro Ile Phe Leu Val Ala Gly Val Ser
 35 40 45
 Cys Ser Asp Leu Glu Ala Arg Leu Thr Glu Glu Tyr Arg Pro Ser Val
 50 55 60
 Pro His Cys Gly Ala Met Lys Gly Lys Gly Trp Phe Gly Leu Trp Lys
 65 70 75 80
 Asn Ser Ser Glu Leu Leu Ser Arg Asp Tyr Val Gln Cys Phe Glu Glu
 85 90 95
 Gln Met Ser Leu Val Tyr Asp Pro Ala Ile Asn Glu Tyr Arg Asn Leu
 100 105 110
 Ala Gly Val Glu Thr Arg Val Pro Asn Phe Gly Ser Thr Arg Ala Phe
 115 120 125
 Ser His Lys Asn Pro Leu Lys Ser Asp Trp Cys Leu Gly Lys Leu Arg
 130 135 140
 Ala Ala Leu Glu Asp Met Gly Tyr Arg Asp Gly Asp Thr Met Phe Gly
 145 150 155 160
 Ala Pro Tyr Asp Phe Arg Tyr Ala Pro Pro Ser Pro Gly Gln Thr Ser
 165 170 175
 Glu Val Tyr Ser Arg Tyr Phe Lys Glu Leu Met Glu Leu Val Glu Ala
 180 185 190
 Ala Ser Glu Arg Thr Arg Lys Lys Ala Val Ile Leu Gly His Ser Phe
 195 200 205
 Gly Gly Met Val Ala Leu Glu Phe Val Arg Asn Thr Pro Pro Ala Trp
 210 215 220
 Arg Arg Glu His Ile Glu Arg Leu Val
 225 230

<210> 5
 <211> 1217

<212> DNA

<213> Glycine max

<400> 5

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<210> 6

<211> 381

<212> PRT

<213> Glycine max

<400> 6

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Phe Arg Leu Trp Phe Asp Ser Ser Val Ile Leu Ala Pro Phe Thr Gln
  20                      25                      30

Cys Phe Ala Glu Arg Met Thr Leu His Tyr His Gln Glu Leu Asp Asp
  35                      40                      45

Tyr Phe Asn Thr Pro Gly Val Glu Thr Arg Val Pro His Phe Gly Ser
  50                      55                      60

Thr Asn Ser Leu Leu Tyr Leu Asn Pro Arg Leu Lys His Ile Thr Gly
  65                      70                      75                      80

Tyr Met Ala Pro Leu Val Asp Ser Leu Gln Lys Leu Gly Tyr Ala Asp
  85                      90                      95

Gly Glu Thr Leu Phe Gly Ala Pro Tyr Asp Phe Arg Tyr Gly Leu Ala
 100                      105                      110

Ala Glu Gly His Pro Ser Gln Val Gly Ser Lys Phe Leu Lys Asp Leu
 115                      120                      125

Lys Asn Leu Ile Glu Glu Ala Ser Asn Ser Asn Asn Gly Lys Pro Val
 130                      135                      140
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Ile Leu Leu Ser His Ser Leu Gly Gly Leu Phe Val Leu Gln Leu Leu
 145 150 155 160
 Asn Arg Asn Pro Pro Ser Trp Arg Lys Lys Phe Ile Lys His Phe Ile
 165 170 175
 Ala Leu Ser Ala Pro Trp Gly Gly Ala Ile Asp Glu Met Tyr Thr Phe
 180 185 190
 Ala Ser Gly Asn Thr Leu Gly Val Pro Leu Val Asp Pro Leu Leu Val
 195 200 205
 Arg Asp Glu Gln Arg Ser Ser Glu Ser Asn Leu Trp Leu Leu Pro Asn
 210 215 220
 Pro Lys Ile Phe Gly Pro Gln Lys Pro Ile Val Ile Thr Pro Ile Arg
 225 230 235 240
 Pro Tyr Ser Ala His Asp Met Val Asp Phe Leu Lys Asp Ile Gly Phe
 245 250 255
 Pro Glu Gly Val Tyr Pro Tyr Glu Thr Arg Ile Leu Pro Leu Ile Gly
 260 265 270
 Asn Ile Lys Ala Pro Gln Val Pro Ile Thr Cys Ile Met Gly Thr Gly
 275 280 285
 Val Gly Thr Leu Glu Thr Leu Phe Tyr Gly Lys Gly Asp Phe Asp Glu
 290 295 300
 Arg Pro Glu Ile Ser Tyr Gly Asp Gly Asp Gly Thr Val Asn Leu Val
 305 310 315 320
 Ser Leu Leu Ala Leu Gln Ser Leu Trp Lys Glu Glu Lys Asn Gln Tyr
 325 330 335
 Leu Lys Val Val Lys Ile Asp Gly Val Ser His Thr Ser Ile Leu Lys
 340 345 350
 Asp Glu Val Ala Leu Asn Glu Ile Val Gly Glu Ile Thr Ser Ile Asn
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 370 375 380

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 <211> 1440
 <212> DNA
 <213> Zea mays

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 <211> 434
 <212> PRT
 <213> Zea mays

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 Arg Cys Arg Arg Glu Val Leu Leu His Pro Leu Val Leu Val Pro Gly
 35 40 45
 Leu Thr Cys Ser Glu Leu Asp Ala Arg Leu Thr Asp Ala Tyr Arg Pro
 50 55 60
 Phe Arg Ala Ala Cys Asp Glu Gly Glu Gly Leu Val Arg Leu Trp Thr
 65 70 75 80
 Asn Cys Ser Asp Leu Pro Ala His His Tyr Val Arg Cys Phe Met Glu
 85 90 95
 Gln Met Ala Leu Val Tyr Asp Pro Val Ala Asn Asp Tyr Arg Asn Leu
 100 105 110
 Pro Gly Val Glu Thr Arg Val Arg Asn Phe Gly Ser Ser Arg Gly Phe
 115 120 125
 Gln Lys Asn Pro Glu His Thr Thr Trp Ser Trp Cys Phe Glu Val Leu
 130 135 140
 Arg Asn Glu Leu Ala Arg Ala Gly Tyr Arg Asp Gly Asp Thr Leu Phe
 145 150 155 160
 Gly Ala Pro Tyr Asp Leu Arg Tyr Ala Pro Pro Val Pro Gly Gln Pro
 165 170 175
 Ser Arg Ser Ser Pro Ala Thr Ser Val Gly Trp Pro Ser Leu Val Glu
 180 185 190
 Asp Ala Ser Arg Lys Asn Arg Gly Arg Lys Val Ile Leu Phe Gly His
 195 200 205

Ser Phe Gly Gly Met Val Ala Leu Glu Phe Val Arg Ser Thr Pro Met
 210 215 220
 Ala Trp Arg Asp Arg Tyr Ile Lys His Leu Phe Leu Val Ala Pro Val
 225 230 235 240
 Pro Ala Glu Gly Phe Val Lys Pro Leu Gln Tyr Phe Val Ser Gly Ser
 245 250 255
 Asn Leu Met Tyr Val Pro Thr Val Ser Ser Leu Glu Pro Ala Phe Arg
 260 265 270
 Pro Met Trp Arg Thr Phe Glu Ser Ser Leu Val Asn Phe Pro Ser Pro
 275 280 285
 Ala Val Phe Gly Arg Arg Pro Leu Val Val Thr Ala Arg Arg Asn Tyr
 290 295 300
 Ser Ala Tyr Asp Leu Glu Asp Leu Leu Val Ala Val Gly Tyr Gly Ala
 305 310 315 320
 Gly Val Glu Pro Phe Arg Arg Arg Ala Val Pro Lys Met Ser Tyr Phe
 325 330 335
 Gln Ala Pro Met Val Pro Thr Thr Cys Met Asn Gly Val Gly Asn Asp
 340 345 350
 Thr Pro Glu Gln Leu Val Tyr Trp Asp Gly Asp Phe Asp Ala Thr Pro
 355 360 365
 Glu Ile Val Tyr Gly Asp Gly Asp Asn Ser Ile Asn Leu Val Ser Met
 370 375 380
 Leu Ala Phe Asp Glu Lys Met Arg Arg Gln Pro Glu Gln Asn Lys Val
 385 390 395 400
 Tyr Lys Ser Ile Lys Ile Arg Gly Ala Gln His Gly Thr Ile Val Thr
 405 410 415
 Asp Asp Thr Ala Leu Lys Arg Val Met His Glu Ile Leu Glu Ala Asn
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Arg Ser

<210> 9
 <211> 1500
 <212> DNA
 <213> Zea mays

<220>
 <221> unsure
 <222> (536)

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<210> 10
 <211> 417
 <212> PRT
 <213> Zea mays

<400> 10

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              20              25              30

Val Val Val Val Pro Gly Tyr Ala Thr Asn Glu Leu Asp Ala Arg Leu
      35              40              45

Thr Glu Leu Tyr His Pro Ser Ser Pro Arg Cys Ala His Lys Gly Lys
      50              55              60

Gly Trp Phe Arg Leu Tyr Leu Asn Tyr Thr Ala Leu Glu Asp Ala Ala
      65              70              75              80

Asp Val Arg Cys Phe Ala Glu Gln Met Ala Thr Ala Tyr Asp Ala Ala
              85              90              95

Ser Asp Asp Tyr Arg Asn Ala Gln Gly Val Glu Thr Arg Val Pro Phe
      100              105              110

Phe Gly Ser Thr Arg Ala Phe Arg Tyr Pro Asp Pro Asp Arg Arg Asn
      115              120              125

Phe Ser Tyr Met Asp Lys Phe Val Ser Arg Leu Glu Arg Leu Ala Tyr
      130              135              140

Arg Asp Gly Glu Asn Leu Phe Gly Ala Pro Tyr Asp Phe Arg Tyr Ala
      145              150              155              160

Val Ala Pro Pro Gly His Pro Ser Arg Val Ala Asp Ala Phe Phe Gly
      165              170              175

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Arg Leu Arg Arg Leu Val Glu Arg Ala Ser Arg Ala Asn Gly Gly Gly
 180 185 190
 Pro Val Thr Ile Val Ala His Ser Tyr Gly Gly Thr Val Ala His Gln
 195 200 205
 Phe Leu Leu Arg Arg Pro Leu Pro Trp Arg Arg Arg Phe Val Arg Arg
 210 215 220
 Phe Val Pro Val Ala Ala Pro Trp Gly Gly Val Val Leu Gly Met Leu
 225 230 235 240
 Thr Ile Val Ala Gly Asn Asn Leu Gly Leu Pro Phe Val Asp Pro Leu
 245 250 255
 Ala Leu Lys Gly Glu Tyr Arg Ser Leu Gln Ser Ser Leu Trp Pro Leu
 260 265 270
 Pro Asn Pro Asn Ala Phe Arg Ala Gly Gln Pro Leu Val Thr Thr Arg
 275 280 285
 Ser Arg Thr Tyr Thr Ala His Asp Met Ala Asp Phe Leu Asp Ala Ile
 290 295 300
 Gly Leu Gly Ala Ala Ile Val Pro Tyr Gln Ser Arg Val Leu Pro Leu
 305 310 315 320
 Phe Arg Glu Leu Pro Ser Pro Arg Val Pro Val Ala Cys Val Val Gly
 325 330 335
 Val Gly Leu Asp Thr Pro Glu Met Leu Ala Tyr Pro Gly Asp Asp Phe
 340 345 350
 Asp Val Thr Pro Met Met Val Met Gly Asp Gly Asp Gly Leu Val Asn
 355 360 365
 Leu Val Ser Leu Leu Ala Val Asp Pro Ala Trp Arg Leu Pro Thr Ala
 370 375 380
 Tyr Phe Arg Met Leu Lys Val Arg Asn Val Ser His Thr Gly Leu Phe
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 405 410 415

Asn

<210> 11
 <211> 1660
 <212> DNA
 <213> Zea mays

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<210> 12
 <211> 439
 <212> PRT
 <213> Zea mays

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<400> 12
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      20                      25                      30

Val Ser Ala Asn Asn Phe His Pro Ile Phe Leu Val Ala Gly Val Ser
      35                      40                      45

Cys Ser Asp Leu Glu Ala Arg Leu Thr Glu Glu Tyr Arg Pro Ser Val
      50                      55                      60

Pro His Cys Gly Ala Met Lys Gly Lys Gly Trp Phe Gly Leu Trp Lys
      65                      70                      75                      80

Asn Ser Ser Glu Leu Leu Ser Arg Asp Tyr Val Gln Cys Phe Glu Glu
      85                      90                      95

Gln Met Ser Leu Val Tyr Asp Pro Ala Ile Asn Glu Tyr Arg Asn Leu
      100                      105                      110

Ala Gly Val Glu Thr Arg Val Pro Asn Phe Gly Ser Thr Arg Ala Phe
      115                      120                      125

Ser His Lys Asn Pro Leu Lys Ser Asp Trp Cys Leu Gly Lys Leu Arg
      130                      135                      140

Ala Ala Leu Glu Asp Met Gly Tyr Arg Asp Gly Asp Thr Met Phe Gly
      145                      150                      155                      160

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Ala Pro Tyr Asp Phe Arg Tyr Ala Pro Pro Ser Pro Gly Gln Thr Ser
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 Glu Val Tyr Ser Arg Tyr Phe Lys Glu Leu Met Glu Leu Val Glu Ala
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 Ala Ser Glu Arg Thr Arg Lys Lys Ala Val Ile Leu Gly His Ser Phe
 195 200 205
 Gly Gly Met Val Ala Leu Glu Phe Val Arg Asn Thr Pro Pro Ala Trp
 210 215 220
 Arg Arg Glu His Ile Glu Arg Leu Val Leu Val Ala Pro Thr Leu Pro
 225 230 235 240
 Gly Gly Phe Leu Glu Pro Val Arg Asn Phe Ala Ser Gly Thr Asp Ile
 245 250 255
 Leu Tyr Val Pro Ala Thr Thr Pro Leu Ala Thr Arg Ala Met Trp Arg
 260 265 270
 Ser Phe Glu Ser Ala Ile Val Asn Phe Pro Ser Pro Ala Val Phe Gly
 275 280 285
 Arg Leu Gln Ala Pro Leu Val Val Thr Arg Glu Arg Asn Tyr Ser Ala
 290 295 300
 Ser Ala His Asp Met Glu Arg Phe Leu Ala Ala Val Gly Ser Gly Glu
 305 310 315 320
 Ala Ala Glu Pro Phe Arg Arg Arg Ala Val Pro Lys Met Gly Ser Phe
 325 330 335
 Ala Ala Pro Met Val Pro Met Thr Tyr Ile Ser Gly Val Gly Asn Arg
 340 345 350
 Thr Pro Leu Arg Leu Val Phe Trp Gly Glu Asp Phe Asp Ala Ala Pro
 355 360 365
 Glu Val Ala Ala Tyr Gly Asp Arg Asp Gly Lys Ile Asn Leu Ile Ser
 370 375 380
 Val Leu Ala Phe Glu Lys Glu Met Arg Arg Gln Pro Glu Gln Lys Lys
 385 390 395 400
 Gln Phe Lys Ser Ile Lys Ile Asn Lys Ala Gln His Ser Thr Ile Val
 405 410 415
 Thr Asp Asp Phe Ala Leu His Arg Val Ile Gln Glu Ile Val Glu Ala
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 Asn Asn Gln Lys Ile Pro Ser
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 <211> 1332
 <212> DNA
 <213> Glycine max

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ctaataccag gtaacggagg gaaccaacta gaagcaaggt tgaccaatca gtacaagccc 180
tctactttca tctgcgaatc atggtaccct ctcatcaaga aaaagaatgg atgggttcaga 240
ctttggtttg attccagtgt catacttgcct cctttcactc aatgctttgc cgaacgcatt 300
acccttcatt accaccaaga actcgatgat tacttcaaca ctcttggggg tgagaccgg 360
gtccctcact ttggttccac caactctctt ctctatctca atcctcgtct caagcatatc 420
accggatata tggcaccctt ggtagattca ttacaaaagc ttggctacgc tgatgggtgag 480
actctgtttg gagcccccta tgactttaga tatggtctag ctgctgaagg tcacccttca 540
caagtgggtt ccaagttcct caaagatcta aagaatttga tagaagaagc aagcaattcc 600
aataatggga agccagtgt acttctctcc cacagtttag gaggcctatt tgtcctacaa 660
ctactaaata gaaaccccc ctcttggcgc aaaaaattca tcaaacactt cattgctctt 720
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<211> 443
<212> PRT
<213> Glycine max

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Ala Ser Asn Leu Asp Pro Leu Ile Leu Ile Pro Gly Asn Gly Gly Asn
35 40 45
Gln Leu Glu Ala Arg Leu Thr Asn Gln Tyr Lys Pro Ser Thr Phe Ile
50 55 60
Cys Glu Ser Trp Tyr Pro Leu Ile Lys Lys Lys Asn Gly Trp Phe Arg
65 70 75 80
Leu Trp Phe Asp Ser Ser Val Ile Leu Ala Pro Phe Thr Gln Cys Phe
85 90 95
Ala Glu Arg Met Thr Leu His Tyr His Gln Glu Leu Asp Asp Tyr Phe
100 105 110
Asn Thr Pro Gly Val Glu Thr Arg Val Pro His Phe Gly Ser Thr Asn
115 120 125
Ser Leu Leu Tyr Leu Asn Pro Arg Leu Lys His Ile Thr Gly Tyr Met
130 135 140
Ala Pro Leu Val Asp Ser Leu Gln Lys Leu Gly Tyr Ala Asp Gly Glu
145 150 155 160

Thr Leu Phe Gly Ala Pro Tyr Asp Phe Arg Tyr Gly Leu Ala Ala Glu
 165 170 175
 Gly His Pro Ser Gln Val Gly Ser Lys Phe Leu Lys Asp Leu Lys Asn
 180 185 190
 Leu Ile Glu Glu Ala Ser Asn Ser Asn Asn Gly Lys Pro Val Ile Leu
 195 200 205
 Leu Ser His Ser Leu Gly Gly Leu Phe Val Leu Gln Leu Leu Asn Arg
 210 215 220
 Asn Pro Pro Ser Trp Arg Lys Lys Phe Ile Lys His Phe Ile Ala Leu
 225 230 235 240
 Ser Ala Pro Trp Gly Gly Ala Ile Asp Glu Met Tyr Thr Phe Ala Ser
 245 250 255
 Gly Asn Thr Leu Gly Val Pro Leu Val Asp Pro Leu Leu Val Arg Asp
 260 265 270
 Glu Gln Arg Ser Ser Glu Ser Asn Leu Trp Leu Leu Pro Asn Pro Lys
 275 280 285
 Ile Phe Gly Pro Gln Lys Pro Ile Val Ile Thr Pro Ile Arg Pro Tyr
 290 295 300
 Ser Ala His Asp Met Val Asp Phe Leu Lys Asp Ile Gly Phe Pro Glu
 305 310 315 320
 Gly Val Tyr Pro Tyr Glu Thr Arg Ile Leu Pro Leu Ile Gly Asn Ile
 325 330 335
 Lys Ala Pro Gln Val Pro Ile Thr Cys Ile Met Gly Thr Gly Val Gly
 340 345 350
 Thr Leu Glu Thr Leu Phe Tyr Gly Lys Gly Asp Phe Asp Glu Arg Pro
 355 360 365
 Glu Ile Ser Tyr Gly Asp Gly Asp Gly Thr Val Asn Leu Val Ser Leu
 370 375 380
 Leu Ala Leu Gln Ser Leu Trp Lys Glu Glu Lys Asn Gln Tyr Leu Lys
 385 390 395 400
 Val Val Lys Ile Asp Gly Val Ser His Thr Ser Ile Leu Lys Asp Glu
 405 410 415
 Val Ala Leu Asn Glu Ile Val Gly Glu Ile Thr Ser Ile Asn Ser His
 420 425 430
 Ala Glu Leu Gly Leu Ser Asn Leu Phe Ser Gly
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 Val Val Thr Met Thr Ser Met Cys Gln Ala Val Gly Ser Asn Val Tyr
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 Pro Leu Ile Leu Val Pro Gly Asn Gly Gly Asn Gln Leu Glu Val Arg
 35 40 45
 Leu Asp Arg Glu Tyr Lys Pro Ser Ser Val Trp Cys Ser Ser Trp Leu
 50 55 60
 Tyr Pro Ile His Lys Lys Ser Gly Gly Trp Phe Arg Leu Trp Phe Asp
 65 70 75 80
 Ala Ala Val Leu Leu Ser Pro Phe Thr Arg Cys Phe Ser Asp Arg Met
 85 90 95
 Met Leu Tyr Tyr Asp Pro Asp Leu Asp Asp Tyr Gln Asn Ala Pro Gly
 100 105 110
 Val Gln Thr Arg Val Pro His Phe Gly Ser Thr Lys Ser Leu Leu Tyr
 115 120 125
 Leu Asp Pro Arg Leu Arg Asp Ala Thr Ser Tyr Met Glu His Leu Val
 130 135 140
 Lys Ala Leu Glu Lys Lys Cys Gly Tyr Val Asn Asp Gln Thr Ile Leu
 145 150 155 160
 Gly Ala Pro Tyr Asp Phe Arg Tyr Gly Leu Ala Ala Ser Gly His Pro
 165 170 175
 Ser Arg Val Ala Ser Gln Phe Leu Gln Asp Leu Lys Gln Leu Val Glu
 180 185 190
 Lys Thr Ser Ser Glu Asn Glu Gly Lys Pro Val Ile Leu Leu Ser His
 195 200 205
 Ser Leu Gly Gly Leu Phe Val Leu His Phe Leu Asn Arg Thr Thr Pro
 210 215 220
 Ser Trp Arg Arg Lys Tyr Ile Lys His Phe Val Ala Leu Ala Ala Pro
 225 230 235 240
 Trp Gly Gly Thr Ile Ser Gln Met Lys Thr Phe Ala Ser Gly Asn Thr
 245 250 255
 Leu Gly Val Pro Leu Val Asn Pro Leu Leu Val Arg Arg His Gln Arg
 260 265 270
 Thr Ser Glu Ser Asn Gln Trp Leu Leu Pro Ser Thr Lys Val Phe His
 275 280 285
 Asp Arg Thr Lys Pro Leu Val Val Thr Pro Gln Val Asn Tyr Thr Ala
 290 295 300
 Tyr Glu Met Asp Arg Phe Phe Ala Asp Ile Gly Phe Ser Gln Gly Val
 305 310 315 320

Val	Pro	Tyr	Lys	Thr	Arg	Val	Leu	Pro	Leu	Thr	Glu	Glu	Leu	Met	Thr	325	330	335	
Pro	Gly	Val	Pro	Val	Thr	Cys	Ile	Tyr	Gly	Arg	Gly	Val	Asp	Thr	Pro	340	345	350	
Glu	Val	Leu	Met	Tyr	Gly	Lys	Gly	Gly	Phe	Asp	Lys	Gln	Pro	Glu	Ile	355	360	365	
Lys	Tyr	Gly	Asp	Gly	Asp	Gly	Thr	Val	Asn	Leu	Ala	Ser	Leu	Ala	Ala	370	375	380	
Leu	Lys	Val	Asp	Ser	Leu	Asn	Thr	Val	Glu	Ile	Asp	Gly	Val	Ser	His	385	390	395	400
Thr	Ser	Ile	Leu	Lys	Asp	Glu	Ile	Ala	Leu	Lys	Glu	Ile	Met	Lys	Gln	405	410	415	
Ile	Ser	Ile	Ile	Asn	Tyr	Glu	Leu	Ala	Asn	Val	Asn	Ala	Val	Asn	Glu	420	425	430	